

Claims

- [c1] 1. An accessing method to a large block flash memory of a memory device, wherein the large block flash memory has a plurality of pages and each page has a plurality of sectors by N, wherein the memory device has a controller to control an access operation between a host and the large block memory of the memory device, wherein the controller includes at least two buffers, when the host intends to program the memory device, the method comprising:
- transferring data sectors between the host and the large block flash memory by alternatively using the buffers; and
- issuing a start program command by the controller for programming the large block flash memory after transferring N data sectors with respect to one page.
- [c2] 2. The method of claim 1, wherein the at least two buffers have two buffers, and the step of transferring data between the host and the large block flash memory comprises:
- alternatively using one of the two buffers to store a data transferred from the host;

transferring a previous data stored in the other one of the two buffers to the large block flash memory; and calculating an address for the data to be programmed to the large block flash memory by the controller, wherein at least two of the above three different operations can be performed at the same time.

- [c3] 3. The method claim 1, wherein the large block flash memory further includes two buffers, and the method further comprises:
 - sending a page of data from the controller to a data cache within the large block flash memory;
 - after the data cache is full, shifting a data content in the data cache to a page buffer within the large block flash memory; and
 - continuously sending a next page of data to the data cache while a content in the page buffer is programmed to a cell array of the large block flash memory.
- [c4] 4. A method of accessing a large block flash memory of a memory device, wherein the large block flash memory has a plurality of pages and each page has a plurality of sectors by N, wherein the memory device has a controller to control an access operation between a host and the large block flash memory of the memory device, the controller also has two buffers regions, the method comprising:

transferring a portion of a current page data from the host to the controller, and transferring a portion of the current page data from the controller to a data cache within the large block flash memory, wherein the two transferring steps can be performed at the same time; shifting the current page data in the data cache to the a page buffer within the large block flash memory; and programming the current page data into a cell array of the large block flash memory, and simultaneously performing the foregoing two transferring steps if a next page data is desired to continuously transfer.

- [c5] 5. The method of claim 4, wherein in the step of shifting the current page data in the data cache to the page buffer, a command "15H" is issued.
- [c6] 6. The method of claim 4, wherein the step of shifting the current page data in the data cache to the page buffer is performed when full data of one page is received and a storage space of the page buffer is available.
- [c7] 7. The method of claim 4, wherein in a time period, at least two of the two transferring steps and the programming step are performed at the same time.
- [c8] 8. The method of claim 4, wherein in a time period, all of

the two transferring steps and the programming step are performed at the same time.

- [c9] 9. The method of claim 4, wherein when a last page is received, a "10H" command is issued to program the memory cell array.
- [c10] 10. The method of claim 4, wherein before a last page is received, a "15H" command is issued for simultaneously receiving the data at the data cache and programming the data at page buffer into the cell array of the large block flash memory.